

MATERIAL STANDARD**SUGGESTED METHOD
FOR CONTAMINATED INSULATOR PERFORMANCE TEST
FOR 26-KV SYSTEM VOLTAGE**

Objective. In general, to demonstrate the ability of an insulator design to maintain its dielectric integrity under exposure to contaminants due to coastal and/or industrial environments when energized at normal operating voltage.

Specifically, to demonstrate that an operated current-limiting fuse or fault limiter will sustain normal operating voltage and switching surge voltage across its terminals, without disruptive failure, during a reasonable period following operation of the device due to degradation of the insulating surface.

Power Frequency (60 Hz) Withstand Tests**A. Basic Test Technique.**

A complete description of the test technique and an explanation of the test parameters is given in CIGRE Paper No. 25-08, 1968, entitled *The Salt Fog Artificial Pollution Test*, by Lambeth, Looms, Leroy, Porcheron, Carrara, and Sforzini.

B. Specimen Description and Mounting

The test specimen shall be an operated device previously tested for current interruption performance at the maximum interrupting rating of the device.

Mounting of the specimen for the salt-fog test shall be representative of all field-mounting positions. Both vertical and horizontal mounting positions must be tested if they are used.

C. Surface Preparation


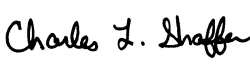


It is important that the surface of the sample under test be "wetable" and "weathered". A wettable surface is one where large continuous films of water can be formed on the surface. A weathered surface is one which is representative of field exposure and typically, for non-porcelain materials, implies a surface that is rough and has the filler materials exposed. Sandblasting or sanding before the test is a normal requirement for these materials, and flame-treating, etching, and ultraviolet light exposure may also have to be used. All grease and dirt should be removed before each test.

D. Test Voltage

The unit shall be tested at the maximum phase-to-ground design voltage of the device. This would be 15.5 kV for 27 kV maximum system level.

E. Withstand Salinity Level

The device shall have a withstand salinity greater than or equal to 40 grams per liter. Full three-phase rated devices can be adequately tested for field performance at the phase-to-ground voltage and the above salinity level.

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Switching Surge Withstand Test

A. Test Technique

The sample shall be exposed to the salt fog for 45 minutes without voltage, as indicated in the 60-Hz description above. After the pre-fog period, the sample shall be subjected to an actual or simulated switching surge wave. The test circuit should be capable of supplying one amp to the test device at the crest surge voltage with less than a 10 per cent drop in the intended surge crest. The device should withstand switching surge voltage applications at the design salinity level. Testing should be limited to a maximum of 75 minutes of fogging.

B. Specimen Description and Mounting (same as 60-Hz test requirements)

The test specimen shall be an operated device previously tested for current interruption performance at the maximum interrupting rating of the device.

Mounting of the specimen for the salt-fog test shall be representative of all field-mounting positions. Both vertical and horizontal mounting positions must be tested if they are used.

C. Specimen Preparation (same as 60-Hz test requirements)

It is important that the surface of the sample under test be "wetttable" and "weathered". A wettable surface is one where large continuous films of water can be formed on the surface. A weathered surface is one which is representative of field exposure and typically, for non-porcelain materials, implies a surface that is rough and has the filler materials exposed. Sandblasting or sanding before the test is a normal requirement for these materials, and flame-treating, etching, and ultraviolet light exposure may also have to be used. All grease and dirt should be removed before each test.

D. Test Voltage

The crest voltage of the test wave should be equal to the crest switching surge voltage generated by the device under any fault conditions. The shape of the wave shall have a time to crest and a time to half-value on the tail of the wave, equal to a representative switching surge generated by the device.

E. Withstand Salinity Level (same as 60-Hz test requirements)

The device shall have a withstand salinity greater than or equal to 40 grams per liter. Full three-phase rated devices can be adequately tested for field performance at the phase-to-ground voltage and the above salinity level.